

### REMARKS

The Office Action dated September 7, 2006 has been reviewed, and the comments of the U.S. Patent Office have been considered. Claims 1-11, 14, 15 and 20-74 are currently pending, claims 1-11, 14, 15, 20-54 and 62-74 stand rejected, and claims 55-61 stand withdrawn. Independent claims 1, 20, 24, 25, 42, 45-48 and 63 have been amended. Reconsideration of this application in view of the above claim amendments and the arguments presented below is respectfully requested.

Claims 1-11, 14, 15, 20-54, 62 and 64-74 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,296,816 to Fischer ("Fischer") in view of U.S. Patent No. 5,810,263 to Tramm ("Tramm"). Claims 63 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer in view of Tramm, U.S. Patent No. 4,121 to Pieczykolan ("Pieczykolan") and U.S. Patent No. 5,727,737 to Bosio et al. ("Bosio"). For reasons already of record, applicants again respectfully traverse the rejection of these claims as being obvious because there is no motivation or suggestion to modify or combine Fischer with Tramm alone or in view of Pieczykolan and Bosio. In addition, Fischer even in view of Tramm, fails to teach or suggest specified features of the claimed invention, i.e., the claimed deflector of the sprinkler. Because there is no motivation or suggestion to combine Fischer and Tramm and because all of the claimed features are not taught by the combination, a *prima facie* case of obviousness cannot stand.

To support the obviousness rejection, the Examiner asserts throughout the Office Action that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the sprinkler of Fischer with the purported teachings of Tramm. The Examiner's proposed combination of references was made having apparently considered, yet finding unpersuasive, the Declaration of Michael A. Fischer. Despite the Examiner's discount of the Declaration, applicants again emphasize that Mr. Fischer states that he (as one of more than ordinary skill in the art and inventor of the sprinkler of Fischer) would not know how to modify the sprinkler shown and described in Fischer with the teachings of Tramm to reach applicants' invention. Consequently, a person of ordinary skill would not have been suggested or motivated to modify the sprinkler shown and described in Fischer with the teaching of Tramm, as proposed

by the Examiner, to reach the claimed invention as a whole so as to support a prima facie case of obviousness.

In addition to discounting the Declaration of Michael A. Fischer, the Examiner proposes to modify the sprinkler of Fischer with the teachings of Tramm to reach applicants' invention in the absence of any other motivation or suggestion to do so. Applicants again respectfully remind the Examiner, "[t]he mere fact that the references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." MPEP 2143.01 at 2100-128 to 2100-129. As has been previously noted, Tramm seeks to distinguish itself from Fischer. Tramm cites Fischer as an illustrative horizontal-type sprinkler. See Tramm, col. 1, lines 35-43. Tramm describes typical horizontal-type sprinklers as having substantially horizontal flow confining elements in which the confining surface is located "downstream (forward)" of the deflector mounting boss. See *id.*, col. 1, lines 35-43; col. 3, lines 33-37. Tramm, in contrast, teaches a sprinkler having a deflector "rearward" of the deflector mounting boss to improve the over-all appearance of Tramm's sprinkler over "conventional technology horizontal-type sprinkler deflectors." See *id.*, col. 8, lines 13-23. In view of this difference or conflicting teaching between Tramm and Fischer, the Examiner must weigh the power of each reference to suggest solutions to one of ordinary skill in the art in the obviousness analysis, considering the extent to which one might accurately discredit another. MPEP 2143.01 at 2100-128.

Furthermore, regardless of whether or not the sprinkler of Fischer can be combined with the teaching of Tramm, their combination still fails to teach or suggest all the claimed features of applicants' invention in claims 1, 20, 24, 25, 42, 45-48, 50 and 63. As has previously been argued on the record by applicants, and which the Examiner has yet to refute, Fischer in view of Tramm fails to teach or suggest the following features: (1) a forward facing canopy, i.e. away from the outlet and towards a free end, as recited in claims 1, 20, 42, 45, and 63; (2) a generally flat canopy surface for a deflector, as recited in claims 24, 25, 46 and 50; and (3) a deflector that has only a single flow opening, as recited in claims 24, 47 and 48. Accordingly, the combination of Fischer and Tramm fails to teach or suggest applicants' invention as a whole.

Applicant respectfully reminds the Examiner that a prior art reference must be considered in its entirety, including portions that lead away from the claimed invention. MPEP 2141.03 pt. IV at 2100-130. Where the claims of the instant application are directed to a sprinkler having a

forward facing deflector. Tramm teaches away from the claimed invention. Tramm specifically teaches a deflector in which, "the substantially horizontal flow containing element 48 is substantially rearward of deflector mounting surface 25 of deflector mounting boss 26." See Tramm, col. 8, lines 13-16. According further to Tramm, as a result of the rearward deflector, "the over-all length of the horizontal-type sprinkler 10 is reduced, and it becomes less obtrusive, especially when mounted inside of a recessed escutcheon. See *id.*, col. 8, lines 16-19.

Applicants submit that none of the cited references: Fischer, Tramm, Pieczykolan, and Bosio, whether taken alone or in combination, show, describe, teach or suggest applicants' invention as a whole, and therefore, for at least the above reasons of record, the pending claims are patentable over the cited art. Notwithstanding applicants' disagreement with the claim rejections and in the interest of advancing prosecution of this application towards allowance, applicants have amended claims 1, 20, 24, 25, 42, 45-48, and 63 to more particularly point out and distinctly claim the subject matter which the applicant regards as his invention. In particular, claims 1, 20, 24, 42, 45-48, and 63 have been amended to recite a sidewall automatic fire sprinkler comprising, among other features, a deflector having "a generally planar face portion." Claim 25 has been further amended to more particularly recite a sidewall automatic fire sprinkler comprising, among other features, a deflector including a face portion, "the face portion consisting of a generally planar face." Because Fischer, alone or in combination with Tramm, Pieczykolan or Bosio, fails to show or describe or otherwise teach or suggest the claimed sidewall automatic fire sprinkler comprising, among other features, a deflector having "a generally planar" face portion, a *prima facie* case of obviousness cannot be established and thus, the rejections cannot stand.

The amendments to the claims are fully supported by the application as originally filed. For example, at page 8, lines 5-8 of the detailed description, it states that "[d]eflector 40 includes a face portion 42," and that "[f]ace portions of the sidewall sprinklers of the present invention are at least generally or substantially planar." See Application As Originally Filed at 8, lines 5-8, FIGS. 3-5. The detailed description further states that, "[a]s used herein when referring to an angular relation, the term 'generally' means  $\pm 10^\circ$ ." See *id.* at 8, lines 17-18. Applicants submit that Fischer, whether taken alone or in combination with Tramm, Pieczykolan or Bosio, fails to show or describe or otherwise teach or suggest a deflector having a "generally planar face portion" as now claimed. Instead, Fischer shows a deflector plate 38 having a central hub 60

from which extends a plurality of differently sized and shaped deflector elements 72, 74, 76, and 78. *See* Fischer at col. 2, line 67 to col. 3, line 3. Fischer specifically provides that the tines 72, 74 are "bent back at an angle A (about "0") from the horizontal plane of the central hub." *See id.* at col. 3, lines 3-5. Accordingly, the deflector 38 of Fischer has tines 72, 74 that are bent back at an angle of about 20° from the vertical plane of the central hub. Because the deflector plate of Fischer has tines 72, 74 bent at an angle of about 20° from the vertical plane of the central hub 60, the deflector plate 38 of Fischer fails to show or describe the "generally planar" face portion as claimed by the applicants.

Combining Fischer with the teachings with Tramm, Pieczykolan or Bosio cannot cure the deficiency of Fischer so as to teach applicants' invention. To the extent any one of Tramm, Pieczykolan or Bosio show or describe a generally planar face portion of a deflector plate, and applicants do not believe any of Tramm, Pieczykolan or Bosio to do so, there is no suggestion or motivation to modify Fischer with such a teaching because to do so would change the principle of operation of Fischer. According to Fischer, the deflector plate 38 produces and distributes a spray, and "[e]ach portion of deflector plate 38 serves a separate function in distributing the spray." *See id.* at col. 3, lines 53-54, 63-64. For example, "[l]ower tines 74 distribute water onto the near wall and adjacent floor area." *See id.* at col. 3, lines 64-65. Thus, to modify the deflector plate 38 of Fischer to have a generally planar face portion, i.e., change the angle A of tines 72, 74 to 10° or less from the vertical plane, would change its principle of operation, and therefore there is no teaching or suggestion to do so. *See* MPEP 2143.02 at 2100-130 (Rev. 5, Aug. 2006) ("If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teaching of the references are not sufficient to render the claims *prima facie* obvious). Because Fischer alone or in combination with Tramm, Pieczykolan or Bosio fails to teach or suggest the claimed deflector and therefore fails to teach or suggest the invention as whole, a *prima facie* case of obviousness cannot be established. *See* MPEP 2143 at 2100-126. Applicant respectfully requests withdrawal of the rejections of claims 1, 20, 24, 25, 42, 45-45 and 63.

Claim 50 as previously presented recites a fire protection system for a structure comprising, among other features, at least one sprinkler including a deflector having a canopy portion, having a fluid deflecting surface "consisting of a generally flat planar surface." As noted above, the detailed description of the application as originally filed provides that, "when

referring to an angular relation, the term 'generally' means  $\pm 10^\circ$ ." See Application As Originally Filed at 8, lines 15-17. Fischer does not show or describe the deflecting surface as claimed. Instead, the deflector plate 38 of Fischer has a confining element 62 extending outward horizontally (perpendicular to the vertical plane of the hub). See Fischer at col. 3, lines 18-20, FIG. 3. According to Fischer, "[t]he confining element [62] is upwardly deformed at its downstream center to form channel 90." See *id.* at col. 3, lines 23-24. Fischer further provides that, "undeformed areas surround the channel on both lateral sides and upstream . . . and the centerline of the undersurface is inclined at an angle of  $10^\circ$  to  $12^\circ$  with respect to the undeformed areas." See *id.* at col. 3, lines 33-38. Accordingly, Fischer does not show or describe the claimed fluid deflecting surface "consisting of a generally flat planar surface." Moreover, to the extent any one of Tramm, Pieczykolan or Bosio show or describe a canopy portion having a deflecting surface "consisting of a generally flat planar surface," there is no suggestion or motivation to modify Fischer with such a teaching because to do so would change the principle of operation of Fischer. According to Fischer, "[c]hannel 90 functions as a Coanda effect surface. . . . [I]t actually lifts upward the central stream, which is traveling horizontally (parallel to the undersurface of element 62)." See Fischer at col. 4, lines 24-32. Thus, to modify the deflector plate 38 of Fischer to have a canopy portion with a deflecting surface "consisting of a generally flat planar surface," i.e. to eliminate the upward deformity of the confining element, would change its principle of operation, and therefore there is no teaching or suggestion to do so. See MPEP 2143.02 at 2100-130 (Rev. 5, Aug. 2006). Because Fischer alone or in combination with Tramm, Pieczykolan or Bosio fails to teach or suggest the claimed deflector surface and therefore fails to teach or suggest the invention as whole, a *prima facie* case of obviousness cannot be established. See MPEP 2143 at 2100-126. Applicant respectfully requests withdrawal of the rejection of claim 50.

Applicants submit, in view of the above remarks, that none of the cited references: Fischer, Tramm, Pieczykolan, and Bosio, whether taken alone or in combination, show, describe, teach or suggest applicants' invention as a whole, and therefore, claims 1, 20, 24, 25, 42, 45-48, 50 and 63 are patentable over the cited art. Claims 2-11, 14, 15 and 62 depend directly or indirectly from claim 1; claims 21-23 depend directly or indirectly from claim 20; claims 26-41 depend directly or indirectly from claim 25; claim 49 depends from claims 43-48; claims 51-54

depend directly or indirectly from claim 50. Accordingly, claims 2-11, 14, 15, 21-23, 26-41, 49, 51-54 and 62 are patentable for at least the same reason.

With regard to the rejection of claims 64-74 as being unpatentable over Fischer in view of Tramm, claim 64 recites an extended coverage sidewall automatic fire sprinkler comprising, among other features,

means for transforming water discharged horizontally from the outlet into a spray pattern of water droplets dispersed over a generally horizontal, generally rectangularly-shaped extended coverage area of more than one hundred square feet located on one side of the sprinkler effective to control an ordinary hazard fire in the coverage area and further for delivering water to a collection area at an average density of about 0.15 gallons per minute per square feet when the sidewall fire sprinkler is paired with an identical sidewall fire sprinkler mounted approximately sixteen feet apart on a generally planar wall surface, the collection area being approximately sixteen feet between the sprinklers and sixteen feet away from one of the sprinklers, the collection area being located at either one of a distance of about thirty-six inches and a distance of approximately six feet and 7.5 inches below each of the sidewall fire sprinklers . . .

thereby invoking 35 U.S.C. 112, sixth paragraph. Applicants respectfully remind the Examiner that application of a prior art reference in the examination of a means-plus-function claim limitation requires that the applied prior art element perform the identical function specified in the claim. *See* MPEP 2183. If the prior art reference teaches identity of function, the Examiner then has the initial burden of proof for showing that the prior art structure or step is the same as or equivalent to the structure, material, or acts described in the specification which has been identified as corresponding to the claimed means or step plus function. *Id.*

Claim 64 presents the “functional recitation” of “transforming water discharged horizontally” in means-plus-function format. In order for the Examiner to apply any of the cited references to claim 64, the Examiner must determine that the cited references perform the identical function specified in the claim; the Examiner has yet to do so. Instead, the Examiner asserts in the Office Action, with regard to the “functional recitation,” that “[t]he device of Fischer in view of Tramm discloses the structural limitations of applicants’ claimed invention, and therefore, it too has the capability to so perform” the claimed function. *See* Detailed Action

at 6. Accordingly, the Examiner's assertions to date are insufficient in the examination of a means-plus-function claim limitation. See MPEP 2183.

Applicants contend that Fischer does not show or describe any specific water density in gallons per minute per square foot to be provided over a protection area. Thus, Fischer does not show or describe the claimed function, and thus, Fischer is not an applicable reference in the examination of claim 64. Tramm, however, does describe at col. 2, lines 6-17 "standards or guidelines" used by each listing organization for evaluating horizontal-type sprinklers which include, "established requirements for: minimum amount of water which must be collected, per unit time, in specified areas (i.e. density) under and between the sprinklers." To the extent this description in Tramm provides the identity of the claimed functional limitation, applicants contend that Tramm does not show or describe structure that is the same or equivalent to structure described in applicants' specification corresponding to the claimed function.

Applicants' specification as originally filed discloses at least a deflector 40, 140 as structure corresponding the claimed means. Shown in applicants' FIG.7 as originally filed, for example, is the canopy portion 144 of the deflector 140 extending distally from the outlet of the sprinkler. In contradistinction, Tramm shows a deflector 22 as being rearward facing, i.e. the flow containing element 48 of the deflector 22 is substantially rearward the deflector mounting surface. See Tramm, col. 8, lines 13-18, FIGS. 1 and 3. Arguably, Tramm's rearward facing deflector and applicants' disclosed "forward" facing deflector are neither the same nor the equivalent. Because Tramm fails to show or describe structure that is the same or equivalent to applicants' structure that corresponds to the claimed means, Tramm alone, at the least, fails to satisfy the requirement of the means-plus-function claim limitation.

To the extent that the Examiner believes that the hypothesized combination of Fischer in view of Tramm provides the claimed function and further teaches or suggests structure that is the same or equivalent to the structure described in applicants' specification corresponding to the claimed means, this argument cannot stand. As discussed above, there is no motivation to combine these references, and the references, singularly or in combination, fail to teach or suggest the claimed invention as a whole. Accordingly, applicants respectfully submit that claim 64 is patentable, and because of their dependencies from claim 64, claims 65-74 are also patentable. Furthermore, claims 65-74 recite structural features that are encompassed by the corresponding structure and equivalents thereof provided by the means-plus-function claim

limitation, that is: (1) a forward facing canopy, i.e. away from the outlet and towards a free end, as recited in claims 65, 66, 68, 69, 70, 74; (2) a generally flat canopy surface for deflector, as recited in claims 67, 68, 71; and (3) a deflector that has only a single flow opening, as recited in claims 67, 72, 73. Accordingly, the combination of Fischer and Franum fails to teach or suggest applicants' invention claimed in claims 65-74 as a whole.

According to the Examiner, claims 64-74 also stand rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Claim 64 recites a means for transforming and delivering, a dual function according to the Examiner. *See Detailed Action* at 3. The Examiner further asserts that the disclosure, as originally filed, purportedly fails to teach a structure which performs the dual function, and thus, claim 64 and the claims depending therefrom allegedly fail to comply with the written description requirement. "To satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention." MPEP 2163 at 2100-165. Possession may be shown with an actual reduction to practice of the claimed invention, and may also be shown by a clear depiction of the invention in detailed drawings. *See id.* at 2100-171.

The application as originally filed provides in the Brief Summary of the Invention, a "deflector being shaped and positioned to transform water discharged horizontally from the outlet upon release of the closure by the trigger . . . ." *See Application as Originally Filed* at 2, lines 11-12. At page 9 of the application as originally filed, described is the deflector 40 having "been shown to be capable of controlling ordinary hazard fires over rectangular extended coverage areas of between 16 x 16 feet (256 square feet) and 16 x 20 (320 square feet) by being able to deliver a sufficiently uniform distribution of water over that area where such water is supplied to the sprinkler 10 at a pressure which causes the sprinkler to discharge the water at a rate of at least 0.15 gallons per minute per square foot (GPM/ft.<sup>2</sup>) of the coverage area to be protected." *See id.* at 9, line 18 to 10, line 1. Moreover, at page 11, line 5 to page 13, line 4 described with reference to FIGS. 12-14 is described a sidewall sprinkler system in which structure is shown and described corresponding to the claimed means of claim 64. In view of the detailed description provided by the application as-originally filed, so as to indicate to one of ordinary skill in the art that the inventors had possession of the invention as claimed, applicants respectfully request withdrawal of the rejection.



With regard to claims 67 and 72-73, each of which recite, "a face portion . . . the face portion consisting of a single flow opening," the Examiner contends that the claims do not comply with the written description because the disclosure, as originally filed discloses the face portion having several flow openings. See Detailed Action at 3. Shown in FIG. 6 is a planar blank 40', which is bent to form deflector 40 of FIGS. 1 and 3-5. Specifically shown is that the blank 40 has a single opening framed in part by arms 52' and 54'. In considering whether there is 35 U.S.C. 112, first paragraph support for a claim limitation, the Examiner must consider not only the original disclosure contained in the summary and detailed description of the invention portions of the specification, but also the original claims, abstract and drawings. See MPEP 2181 pt. IV at 2100-233. Withdrawal of the rejection is respectfully requested.

Claims 64-74 also stand rejected under 35 U.S.C. 112, second paragraph, as purportedly failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. As discussed above, the application as originally filed describes detailed structure that corresponds to the claimed means for performing the "dual function" as asserted by the examiner. If the corresponding structure, material or acts are described in the specification in specific terms and one skilled in the art could identify the structure, material or acts from the description, then the requirements of 35 U.S.C. 112, second and sixth paragraphs are satisfied. See MPEP 2181 pt. III at 2100-232. In view of the detailed description as originally filed, application respectfully requests withdrawal of the rejection.

**CONCLUSION**

In view of the foregoing amendments and remarks, applicants respectfully request reconsideration of this application and the prompt allowance of at least claims 1-11, 14-15 and 20-74. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact the undersigned to expedite prosecution of the application.

The Commissioner is hereby authorized by this paper to charge any fees during the entire pendency of this application including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account 50-3840. **This paragraph is intended to be a CONSTRUCTIVE PETITION FOR EXTENSION OF TIME in accordance with 37 C.F.R. § 1.136(a)(3).**

Respectfully submitted,



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